

# PATENT ABSTRACTS OF JAPAN

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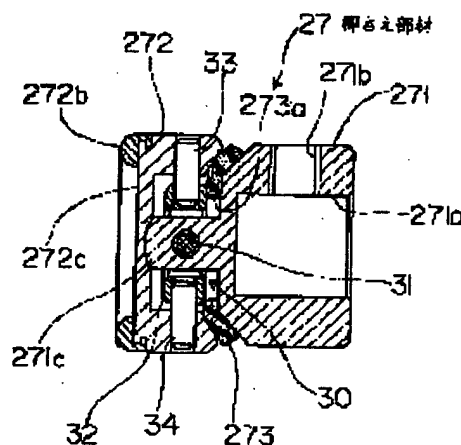
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## (54) LENS PRESSING MEMBER

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To more correctly hold a lens in a lens pressing member which is fitted to a tip of a holding shaft to hold a lens and is brought into pressure contact with the lens surface.

**SOLUTION:** An elastic member 273 is fitted in a clearance of a connection part between a pressure contact head part 272 and a base part 271. Even when the self-weight or a temporary force from the outside is applied to the pressure contact head part 272, the direction of a pressure contact surface 272a is kept in an approximately perpendicular direction to the axis of a holding shaft due to the effect of the elastic force in the thickness direction of the elastic member 273. When the holding shaft is moved to a side of an eyeglass lens fixed to the holding shaft, the elastic member 273 is deformed and the direction of the pressure contact head part 272 is changed according to the shape of the lens surface.



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**CLAIMS**

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[Claim(s)]

[Claim 1] The lens which it is attached at the nose of cam of the maintenance shaft holding a lens characterized by providing the following, and carries out a pressure welding to a lens side presses down, and it is a member. The pedestal directly connected with the aforementioned maintenance shaft. The elastic member which is connected with the aforementioned pedestal through a universal joint, and the crevice between the connection sections of the pressure-welding head which carries out a pressure welding to the aforementioned lens side, and the aforementioned pressure-welding head and the aforementioned pedestal is equipped with, and resists the self-weight of the aforementioned pressure-welding head, and has an elastic force weaker than the contact pressure to the aforementioned lens side of the aforementioned pressure-welding head.

[Claim 2] the presser foot of the lens according to claim 1 characterized by forming the aforementioned elastic member by sponge — a member

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the presser-foot member of the lens which has especially a universal joint about the presser-foot member of the lens which it is attached at the nose of cam of the maintenance shaft holding a lens, and carries out a pressure welding to a lens side.

[0002]

[Description of the Prior Art] Conventionally, it is necessary to hold a lens certainly in \*\*\*\*\* processing equipment and the lens configuration measuring device of a spectacle lens. For example, the spectacle lens for processing is held in a lens maintenance unit, and it is made to make a grinding stone contact with \*\*\*\*\* processing equipment. Two maintenance shafts are prepared in the lens maintenance unit, and it is made to pinch a spectacle lens with these maintenance shafts.

[0003] Always, it does not restrict, but eccentricity may be carried out to the optical center position of a lens, it may pinch, and, also in a lens side, this pinching position changes in curvature and a configuration with prescription and the frequencies of a lens. Drawing 6 is drawing showing the example of composition of the conventional lens maintenance mechanism section in a lens maintenance unit. The maintenance shaft 61 and the maintenance shaft 62 are established so that it may synchronize mutually and may rotate. The holder 63 is attached at the nose of cam of the maintenance shaft 61. This holder 63 is equipped with the electrode holder 65 with which the spectacle lens 64 was fixed. The spectacle lens 64 is being fixed to the electrode holder 65 by the convex 64a side.

[0004] It presses down at the nose of cam of another maintenance shaft 62, and the member 66 is attached in it. It presses down and the member 66 mainly consists of a pedestal 661 and a pressure-welding head 662. The pressure-welding head 662 is connected with the pedestal 661 through the universal joint which is not illustrated. Thereby, the pressure-welding head 662 is freely changed in the range predetermined in the sense of the pressure-welding side 662a.

[0005] Such a maintenance shaft 62 with which it pressed down and the member 66 was attached moves toward a spectacle lens 64, and carries out the pressure welding of the pressure-welding head 662 to concave surface 64b. At this time, pressure-welding side 662a turns [ head / pressure-welding / 662 ] to the sense which maintains balance most according to the configuration of concave surface 64b. Therefore, the pressure-welding head 662 can always press down concave surface 64b by the equal force all over pressure-welding side 662a.

[0006]

[Problem(s) to be Solved by the Invention] However, the pressure-welding head 662 will remain inclining, as shown in drawing 7 (A), when the force from a self-weight or the outside was received, since there is no mechanism in which the former presses down and the sense of the pressure-welding head 662 is held to the fixed sense in a member 66. When the pressure-welding head 662 is moved to the concave surface 64b side in this state where it inclined, as shown in this drawing (B), pressure-welding side 662a will carry out a pressure welding in the state where it shifted from the sense of concave surface 64b greatly.

[0007] However, the pressure-welding head 662 changes the sense automatically also at this time, slipping concave surface 64b according to the configuration of concave surface 64b, and, finally it carries out a pressure welding to concave surface 64b all over pressure-welding side 662a at it. However, since there were many amounts which slip in this case, there was a possibility that the position and configuration of a spectacle lens 64 might change with frictions a lot.

[0008] this invention is made in view of such a point, the amount of slips at the time of the pressure welding to a lens side can be reduced, and it aims at offering the presser-foot member of the lens which can hold a lens correctly.

[0009]

[Means for Solving the Problem] In the presser-foot member of the lens which it is attached at the nose of cam of the maintenance shaft holding a lens, and carries out a pressure welding to a lens side in order to solve the above-mentioned technical problem in this invention The pedestal directly connected with the aforementioned maintenance shaft, and the pressure-welding head which connects with the aforementioned pedestal through a universal joint, and carries out a pressure welding to the aforementioned lens side, The crevice between the connection sections of the aforementioned pressure-welding head and the aforementioned pedestal is equipped, and the presser-foot member of the lens characterized by having the elastic member which resists the self-weight of the aforementioned pressure-welding head, and has an elastic force weaker than the contact pressure to the aforementioned lens side of the aforementioned pressure-welding head is offered.

[0010] By such presser-foot member of a lens, since the pressure-welding head is connected with the pedestal through the universal joint, the sense is fundamentally changed free in the predetermined angle range. However, a pressure-welding head being able to resist a self-weight and usually inclining to the axis of a maintenance shaft by the elastic force of the elastic member with which the crevice between the connection sections of a pressure-welding head and a pedestal was equipped, is prevented. For this reason, at the time of maintenance operation of a lens, a pressure-welding head can be contacted to a lens side with the sense which always met the axis.

[0011] Moreover, if a lens side is made to carry out the pressure welding of the pressure-welding head, since an elastic member will deform on the other hand according to the contact pressure, according to the configuration of a lens side, the sense changes a pressure-welding head. Although a pressure-welding head changes the sense, slipping a lens side, since it changes on the basis of the sense which always met the axis at this time, no matter a lens side may be what sense, the amount of slips is average and does not increase extremely. Therefore, the position of a spectacle lens is changed at the time of a slip, or making it deform is reduced as much as possible, and a lens can be held more to accuracy.

[0012]

[Embodiments of the Invention] Hereafter, one gestalt of this invention is explained based on a drawing. Drawing 2 is the perspective diagram showing the appearance of the \*\*\*\*\* processing equipment of a spectacle lens with which the presser-foot member of this gestalt is used. As for \*\*\*\*\* processing equipment 10, the whole function is contained in the main part case 11 and the noise insulation cover 12. The electric power switch 111, the control panel 112, and the size dial 113 grade are prepared in the side front of the main part case 11. On the other hand, the lens maintenance unit 13 is formed in the main part case 11 interior. This lens maintenance unit 13 is seen from an equipment transverse plane on the slide shaft 131 prepared in the up backside of the main part case 11, and is attached in right and left possible [ a slide ] and free [ rotation ].

[0013] The crevice 132 is formed in the front-face side of the lens maintenance unit 13. The lens maintenance mechanism section 14 is formed in this crevice 132. By binding the chucking grip 141 tight, the lens maintenance mechanism section 14 pinches and holds a spectacle lens, and carries out the roll control of the held spectacle lens. The lens maintenance mechanism section 14 is protected by the raintight cover 133 prepared in the lens maintenance unit 13.

[0014] The lens template maintenance mechanism section 15 is formed in the left-hand side of

the lens maintenance unit 13. Lens template 15a which has a target processing configuration is attached in this lens template maintenance mechanism section 15. the lens template contact which lens template 15a contacts under the lens template maintenance mechanism section 15 within the main part case 11 — the member 16 is formed lens template contact — the member 16 is supported by the arm 17 The arm 17 is attached in a part of lens maintenance unit 13, it can rotate freely in the vertical direction, and the slide to the lens maintenance unit 13 and one is attained.

[0015] It is in the main part case 11, and the polish section 18 is formed under the lens maintenance mechanism section 14. The grinding stone of a rotating type is prepared in the polish section 18, and a spectacle lens is processed into it by this grinding stone.

[0016] Drawing 3 is the front view showing the composition of the lens maintenance mechanism section 14. Two maintenance shafts 21 and 22 are formed in the lens maintenance mechanism section 14. The maintenance shaft 21 and the maintenance shaft 22 are established so that it may synchronize mutually and may rotate. The holder 23 is attached at the nose of cam of the maintenance shaft 21 at one. This holder 23 is equipped with the electrode holder 25 with which the spectacle lens 24 was fixed. The spectacle lens 24 is being fixed to the electrode holder 25 through the putt 26 stuck on the convex 24a side.

[0017] It presses down in nose-of-cam 22a of another maintenance shaft 22, and the member 27 is attached in it. The maintenance shaft 22 moves to a spectacle lens 24 side, is pressed down, and carries out the pressure welding of the member 27 to concave surface 24b. Thereby, maintenance of a spectacle lens 24 is made.

[0018] Drawing 4 is drawing in which pressing down and showing the appearance composition of a member 27, and drawing which looked at (A) from the direction perpendicular to an axis, and (B) are drawings seen from the pressure-welding head side. It presses down and the member 27 mainly consists of a pedestal 271 and a pressure-welding head 272. The pressure-welding head 272 is connected with the pedestal 271 through the below-mentioned universal joint.

[0019] contact of the shape of a ring formed in the edge of pressure-welding side 272a of the pressure-welding head 272 by synthetic rubber — a member — 272b is attached this contact — a member — 272b contacts concave surface 24b of a spectacle lens 24 directly

[0020] Moreover, the crevice between the connection sections of the pressure-welding head 272 and a pedestal 271 is equipped with the elastic member 273. Drawing 5 is drawing showing the configuration of an elastic member 273, (A) is a plan and (B) is a side elevation. The whole is formed in the shape of a ring, an elastic member 273 is formed in the grade as the pressure-welding head 272 that an appearance is the same, and thickness is formed in about several mm. This elastic member 273 is formed by sponge. Moreover, the bore is formed in the grade which a pedestal 271 or the pressure-welding head 272 can insert that there is no unreasonableness in inside section 273a, when an elastic member 273 is pulled outside and it extends.

[0021] Drawing 1 is drawing in the state where it was equipped with the elastic member 273, in which pressing down and showing the internal configuration of a member 27, and is the cross section cut along with the X-X line of drawing 4 (B). Hole 271a is formed in the pedestal 271 interior. Point 22a of the maintenance shaft 22 is inserted in this hole 271a. Moreover, screwhole 271b penetrated from the side to hole 271a is formed in the pedestal 271. The screw which is not illustrated is screwed in this screwhole 271b, and, thereby, a pedestal 271 is fixed to the maintenance shaft 22.

[0022] Piece of installation 271c is formed at the nose of cam of a pedestal 271. The pressure-welding head 272 is connected with this piece of installation 271c through the universal joint 30. This universal joint 30 is mainly constituted by a shaft 31, an intermediate stiffening ring 32, and shafts 33 and 34. An intermediate stiffening ring 32 is attached with a shaft 31, and is attached free [ rotation ] to piece 271c. And the pressure-welding head 272 is attached free [ rotation ] with a shaft 31 and the right-angled shafts 33 and 34 to this intermediate stiffening ring 32. Thereby, the pressure-welding head 272 is a predetermined angle range, and can be suitable of the head in the free direction to a pedestal 271.

[0023] The crevice between the connection sections of this pressure-welding head 272 and pedestal 271 is equipped with the elastic member 273. An elastic member 273 is in the state

which pulled outside and extended the ring, and it is equipped with it by inserting in from the pedestal 271 or pressure-welding head 272 side.

[0024] Let the pressure-welding head 272 be the other side caudad in the state where such composition pressed down and only the self-weight has joined the pressure-welding head 272 in the member 27. However, the pressure-welding head 272 is maintained by operation of the elastic force of the thickness direction of an elastic member 273 in the direction where the sense of the pressure-welding side 272a is almost perpendicular to the axis of the maintenance shaft 22 (it is henceforth called a steady state). Moreover, if it is wide opened even when the force is temporarily applied from the exterior and, it will return to the original steady state immediately.

[0025] And the maintenance shaft 22 moves to the spectacle lens 24 side fixed to the maintenance shaft 21, and as shown in drawing 3, when the pressure-welding head 272 carries out a pressure welding to concave surface 24b, an elastic member 273 deforms by the contact pressure. Thereby, as for the pressure-welding head 272, the sense changes according to the configuration of concave surface 24b.

[0026] At this time, although it changes the sense, slipping concave surface 24b, since the pressure-welding head 272 always changes to the axis of the maintenance shaft 22 on the basis of a direction, no matter concave surface 24b may be what sense, the amount of slips is average and it does not increase extremely. Therefore, the position of a spectacle lens 24 can be changed at the time of a slip, or making it deform can decrease as much as possible, and a lens can be held more to accuracy.

[0027] If processing of a spectacle lens 24 is completed and the maintenance shaft 22 separates from a spectacle lens 24 again, the pressure-welding head 272 will return to the original steady state immediately. Thus, with this form, since the crevice between the connection sections of the pedestal 271 and the pressure-welding head 272 which were connected with the universal joint was equipped with the elastic member 273 which is an elastic member, even if the force from a self-weight or the outside is added, a steady state is maintainable. Therefore, the pressure welding of the pressure-welding head 272 can always be carried out to a spectacle lens 24 with the fixed sense. Moreover, since the sense changes on the other hand according to the configuration of concave surface 24b when the pressure-welding head 272 carries out a pressure welding to a spectacle lens 24, a spectacle lens 24 can be held correctly.

[0028] Moreover, since sponge was used as an elastic member 273 with this form, it is cheap and manufacture is also easy. In addition, although this form showed the example applied to the lens maintenance mechanism section 14 of \*\*\*\*\* processing equipment 10 as a presser-foot member of a lens, it is also applicable also to the lens maintenance mechanism sections, such as a lens configuration measuring device.

[0029]

[Effect of the Invention] As explained above, since a pedestal and a pressure-welding head are connected through a universal joint and the crevice between the connection sections of a pressure-welding head and a pedestal was equipped with the elastic member in this invention, a pressure-welding head can resist a self-weight, and since usually inclining to the axis of a maintenance shaft can prevent, a pressure-welding head can be contacted to a lens side with the sense which always met the axis. Moreover, if a lens side is made to carry out the pressure welding of the pressure-welding head, since an elastic member will deform on the other hand according to the contact pressure, the sense of a pressure-welding head is easily changeable according to the configuration of a lens side. Although a pressure-welding head slips a lens side at this time, since it changes on the basis of the sense which always met the axis, no matter a lens side may be what sense, the amount of slips is average and does not increase extremely.

[0030] Therefore, the position of a spectacle lens can be changed at the time of a slip, or it can reduce making it deform as much as possible, and a lens can be held more to accuracy.

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

**[Drawing 1]** It is drawing in the state where it was equipped with the elastic member, in which pressing down and showing the internal configuration of a member, and is the cross section cut along with the X-X line of drawing 4 (B).

**[Drawing 2]** It is the perspective diagram showing the appearance of the \*\*\*\*\* processing equipment of a spectacle lens with which the presser-foot member of this gestalt is used.

**[Drawing 3]** It is the front view showing the composition of the lens maintenance mechanism section.

**[Drawing 4]** It is drawing in which pressing down and showing the appearance composition of a member, and drawing which looked at (A) from the direction perpendicular to an axis, and (B) are drawings seen from the pressure-welding head side.

**[Drawing 5]** It is drawing showing the configuration of an elastic member, and (A) is a plan and (B) is a side elevation.

**[Drawing 6]** It is drawing showing the example of composition of the conventional lens maintenance mechanism section in a lens maintenance unit.

**[Drawing 7]** the conventional presser foot — it is drawing showing the structure of a member, and drawing in which (A) shows the state where the pressure-welding head inclined, and (B) are drawings showing the state where the leaning pressure-welding head contacts a spectacle lens

**[Description of Notations]**

10 \*\*\*\*\* Processing Equipment

13 Lens Maintenance Unit

14 Lens Maintenance Mechanism Section

21 22 Maintenance shaft

23 Holder

24 Spectacle Lens

24a Convex

24b Concave surface

25 Electrode Holder

30 Universal Joint

27 Press Down and it is Member.

271 Pedestal

272 Pressure-Welding Head

273 Elastic Member

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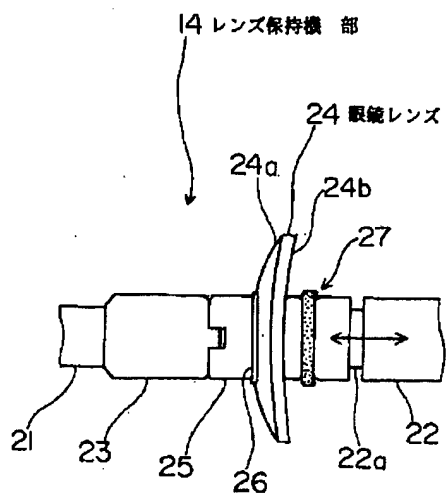
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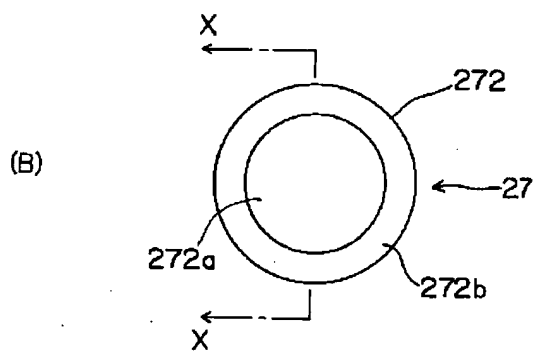
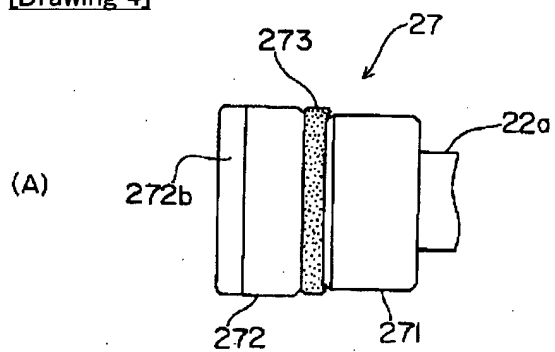
## DRAWINGS

Figure 1 is a perspective view of a lens storage unit 10. The unit has a main body 11 and a lid 12. The lid 12 is open, revealing the interior. Inside, there is a lens holding unit 13. A lens 14 is held in place by a lens holding member 15a. The unit also includes a lens 16, a lens 17, a lens 18, and a lens 19. The unit is shown in an open position, revealing the internal components.

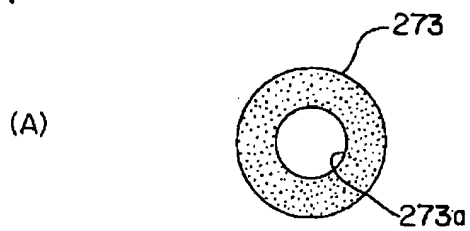
[Drawing 3]



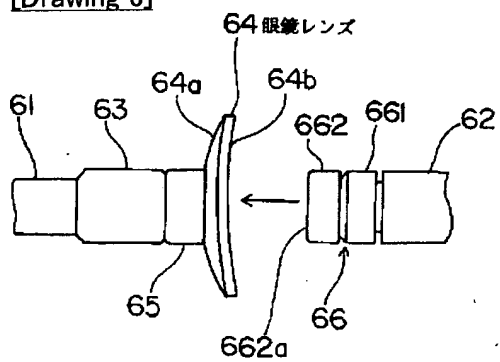
[Drawing 4]



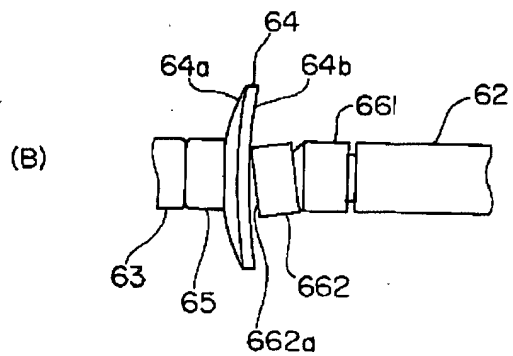
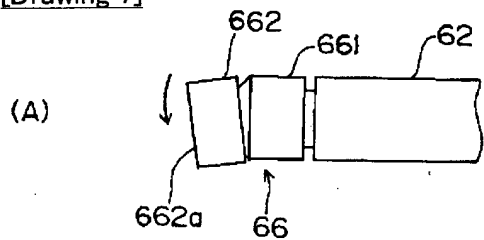
[Drawing 5]



[Drawing 6]



[Drawing 7]



[Translation done.]